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V.—*On new and little-known Rhopalocera from the Indian region.*

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[With Plates I, IX and X.]

Family NYMPHALIDÆ.

Subfamily NYMPHALINÆ.

1. HESTINA ZELLA. (Plate I, fig. 2, ♀.)

Hestina zella, Butler, Trans. Ent. Soc. Lond., 1869, p. 9 (with a woodcut), *male*; *id.*, Moore, Proc. Zool. Soc. Lond., 1882, p. 240.

Mr. Butler in describing the male of this species, but not knowing the exact locality from whence it was obtained, stated that "it is remarkable as being an excellent mimic of *Danais juvenata*, a widely distributed and tolerably common East Indian and Oceanic species." *Danais* (*Radena*) *juvenata* is certainly superficially very similar in markings to *H. zella*, but according to present knowledge it does not occur in the N.-W. Himalayas, being in fact confined to the islands of Java, Lombock and Billiton as far as I am aware. Nor is there any other common *Danais* occurring in the same region as *H. zella* that it could mimic, except it be *D. limniace*. It at once struck me when capturing the female here figured on the forest-clad road between Chumba and Kujiah on the 22nd May, 1879, that it was an excellent mimic both in the slow and sailing mode of its flight and in general appearance of *Metaporia caphusa*, Moore (Proc. Zool. Soc. Lond. 1872, p. 564), which is an exceedingly common butterfly in the Spring in many parts of the outer N.-W. Himalayas, and is doubtless a protected species. It is more probable that our *H. zella* mimics the *Pieris* rather

than a *Danais*, especially as on the underside both species are washed with yellow on the hindwing, which the *Danais* are not.

The female has not been described. It differs from the male (known to me by Butler's description and figure only) in being considerably larger, both wings broader, and the outer margin of the forewing less emarginate. Expanse 3·4 inches. It is not a common species apparently, though Mr. Moore in describing Mr. Hocking's collection gives for it "Kangra district generally."

Family LYCÆNIDÆ.

2. LYCÆNA ? LEELA, n. sp. (Plate I, figs. 3, ♂ ; 3 a, ♀.)

HAB. Ladak.

EXPANSE: 1·1 to 1·2 inches.

DESCRIPTION. MALE. UPPERSIDE, *both wings* blackish, powdered up to the discal rows of spots with metallic pale green scales. *Forewing* with a prominent black white-encircled spot at the end of the cell, and a discal curved series of five (in one specimen) or six (in two specimens) whitish spots, with indistinct dark centres. *Hindwing* with a spot closing the cell, less prominently black than in the forewing, a white spot placed outwardly above it, and four spots on the disc, whitish. UNDERSIDE, greyish-white, pale brown on the disc of both wings, and the base pale greenish. *Forewing* with a spot in the middle of the cell, a large one closing it, a discal series of six or seven spots, of which the two lower ones are smaller than the rest and (when both are present) geminate; all black with prominent white margins; the outer margin almost pure white with an indistinct series of spots. *Hindwing* with a spot below the costa near the base, a very large spot at the end of the cell, a very irregular discal series of seven spots, and a marginal double series of coalescing lunules, white. *Cilia* very long and white. FEMALE. UPPERSIDE, *both wings* deeper coloured, with a few scattered pale greenish metallic scales at the base only. *Forewing* with the discal series of spots prominently centred with black, and variable in number from four to six. *Hindwing* with the spots smaller and less prominent than in the male. UNDERSIDE variable in tone of colour, being much darker in some specimens (including the type specimen figured) than in others, the discal markings sometimes blurred and running into the pale margin beyond, otherwise much as in the male.

Closely allied to *Polyommatus ellisi*, Marshall (Journ. A. S. B., vol. li, pt. ii, p. 41, pl. iv, fig. 4 1882), *male*, but the male differing from the type specimen of that species now before me in having the apex and the outer margin of the forewing more rounded, in *P. ellisi* the apex is acute, and the outer margin straight; the upperside of both wings paler in colour and more broadly irrorated with greenish scales, the discal spots more numerous, the markings on the underside throughout more prominent, and with an additional spot in the cell of the forewing. The colouring of the

figure of *P. ellisi* is much too vivid, the metallic colouring of the base of the wings and the body is a very pale green.

Lycæna wosnesenskii, Ménétriés, (Cat. Mus. Petr., Lep, vol. i, pp. 58, and 95, no. 964, pl. iv, fig. 6 1855), is also a closely allied species, the upperside being figured with the apex of the forewing very acute, the figure of the underside showing it quite rounded. It is recorded from "Kamtchatka."

This species was found by me only on passes; the female figured was taken near the top of the Zoji-la on the Ladak side at about 11,000 feet elevation on June 27th, 1879; on July 2nd seven specimens of both sexes on the Mamyika Pass, Ladak, 13,000 feet; and lastly, on July 3rd seven more specimens on the Fotu-la, Ladak, at about the same elevation.

The next seven species described and figured belong to the *puspa* group of the genus *Cyaniris* of Dalman, described by Moore at page 74 of his "Lepidoptera of Ceylon." As these species are all more or less closely allied, a few preliminary remarks regarding them may perhaps be of interest, and enable entomologists to separate them more easily, which remarks are perhaps best embodied in a key.

Key to the males of certain species of Cyaniris allied to puspa.

A. Upperside without any pure white or irrorated white patches.

C. PLACIDA.

B. Upperside with irrorated white patches more or less prominent on both wings, sometimes obsolete on the hindwing.

a. With the black border of the forewing very narrow, not reaching the hinder angle or obsolete, leaving the anteciliary black thread only; no black border to the hindwing.

C. DILECTUS.

b. With the black border of the forewing broader, especially at the apex; hindwing with a somewhat narrower similar border.

a¹. The markings on the underside small and regular.

C. IYNTEANA.

b¹. The markings on the underside much larger and placed irregularly.

C. PUSPA.

c. With the black border of the forewing a little broader still, perceptibly broader in the hindwing, apex of forewing more produced than in *C. puspa*.

C. TRANSPECTUS.

C. Upperside with pure white patches on both wings.

a. A small patch on both wings, outer black margins very wide, markings on the underside usually exactly as in *C. puspa*.

C. MARGINATA.

b. Patches large on both wings, outer black border of the forewing less wide than in *C. marginata*, and not reaching the hinder angle; no black border to the hindwing; markings on the underside very small and regular.

C. ALBOCÆRULEUS.

C. akasa, *C. lavendularis*, *C. lanka*, *C. singalensis*, and *C. limbatus* all apparently belong to this group, but the absence of specimens makes it impossible to place them in their proper places in the key.

3. *CYANIRIS PLACIDA*, n. sp. (Plate I, fig. 8, ♂.)

C. placida, Moore, *M. S.*

HAB. Sikkim; Sibsagar, Upper Assam (*S. E. Peal*).

EXPANSE: ♂, 1.1 to 1.4 inches.

DESCRIPTION: MALE. UPPERSIDE, *both wings* rather deep lavender blue. *Forewing* with the costa very narrowly, and the outer margin more widely but decreasingly to the hinder angle black. *Hindwing* narrowly black, the inner edge of the black border lunulated, sometimes reduced to black spots between the nervules, and a black anteciliary line. UNDERSIDE, *both wings* white, slightly tinted with blue. *Forewing* with a fine disco-cellular streak defined outwardly with whitish; a discal series of five or six more or less irregularly shaped and placed spots; a submarginal lunulated line, marginal spots and anteciliary line. *Hindwing* with three sub-basal black spots; a faint slender disco-cellular line; a discal very sinuous series of eight spots, the upper one on the costa and the lower one on the abdominal margin deep black and the most distinct; marginal markings as on the forewing. *Cilia* white on both sides.

Next to *C. puspa*, this seems the commonest *Cyaniris* in Sikkim; I took it at various elevations in October, and Mr. Otto Möller has taken it in large numbers in the Spring. The males are very constant, but I have not seen the female.

C. placida is very close to, if not identical with, the *Lycena cagaya* of Felder (*Reise Novara*, Lep., p. 278, no. 347, pl. xxxiv, figs. 11, 12 ♂, 13 ♀, 1865, from Luzon). In *C. cagaya* the marginal spots on the upperside of the hindwing in the male are more prominent than in *C. placida*.

4. *CYANIRIS DILECTUS*. (Plate I, fig. 5, ♂.)

Polyommatus dilectus, Moore, Proc. Zool. Soc. Lond., 1879, p. 139.

HAB. Simla; Nepal; Sikkim; N. Cachar; Sibsagar, Upper Assam (*S. E. Peal*); and Upper Burma (*brought by the Yunnan Expedition*).

EXPANSE: ♂, 1.05 to 1.40; ♀, 85 to 1.35 inches.

DESCRIPTION: MALE. UPPERSIDE, *both wings* pale blue, with a very fine black anteciliary line, which towards the apex of the forewing in some specimens becomes slightly diffused inwardly. *Forewing* with a patch of irrorated white scales on the disc below the cell and between the median nervules, very prominent in some specimens, obsolete in others (as in the Sikkim specimen figured). *Hindwing* with a similar patch, but placed be-

tween the second median nervule and costal nervure, and almost reaching the apex. **UNDERSIDE**, *both wings* as in *C. albocæruleus*, but with a more or less prominent submarginal series of dusky lunules. **FEMALE**. **UPPERSIDE** almost as in *C. albocæruleus*, but the outer margin less broadly black, the basal area glossed with very bright metallic blue, not unmetallic pale lavender-blue as in the latter species; the disco-cellular streak more prominent. *Hindwing* with the submarginal series of round dusky prominent spots inwardly defined by bluish lunules. **UNDERSIDE** as in the male.

Both sexes of this species were taken by me in the neighbourhood of Simla, most frequently on Tawa Devi, also at different elevations in Sikkim in October. Mr. Otto Möller has also taken males in large numbers in Sikkim at low elevations in the Spring.

Figure 5a of Plate I represents what is now believed by me to be the female of *C. puspa* from Simla, but which was at first mistaken for the female of *C. dilectus*.

5. *CYANIRIS IYNTEANA*, n. sp. (Plate I, fig. 7, ♂; 7a, ♀.)

C. iynteana, Moore, *M. S.*

HAB. Sikkim; Shillong.

EXPANSE: ♂, 1.05 to 1.4; ♀, .9 to 1.25 inches.

DESCRIPTION: MALE. **UPPERSIDE**, *both wings* somewhat deep lavender-blue. *Forewing* with the outer margin, widest at the apex, sometimes reduced to a point at the hinder angle, dusky black; an indistinct disco-cellular streak sometimes absent; and the disc between the median nervules just beyond the cell irrorated with white scales in some specimens. *Hindwing* with the outer margin dusky-black, its inner edge lunulated. In some specimens the apical area is obscurely irrorated with white. **UNDERSIDE**, *both wings* pale grey. *Forewing* with a pale brown slender disco-cellular streak, a discal series of five similar spots, of which the upper one is much out of line, being placed nearer to the base of the wing; a submarginal lunulated line and marginal spots very pale brown; the usual fine anteciliary black line. *Hindwing* with three subbasal black spots; a slender brown disco-cellular streak; a very sinuous discal series of nine spots; marginal markings as on the forewing. **FEMALE.** **UPPERSIDE**, *forewing* with all but the middle of the disc (which is white glossed with iridescent blue) black; a disco-cellular black spot. *Hindwing* blackish, white in the middle, glossed with blue, and along the veins irrorated with black scales; a submarginal series of pale lunules. **UNDERSIDE** marked exactly as in the male.

Four male and two female specimens of this species were taken by me at different elevations in Sikkim in October. The males differ in size, in the absence in two of them of the white patch on the disc of the forewing

on the upperside, and also in the width of the marginal black border, which in some specimens disappears at the hinder angle. The underside is very constant, all the spots and markings being very small and distinct.

6. *CYANIRIS TRANSPECTUS*. (Plate I, fig. 6, ♂ ; 6a, ♀.)

Polyommatus transpectus, Moore, Proc. Zool. Soc. Lond., 1879, p. 139.

HAB. Sikkim ; Khasi Hills.

EXPANSE: ♂, .95 to 1.4 ; ♀, 1.20 to 1.35 inches.

DESCRIPTION: MALE. UPPERSIDE, *both wings* lavender-blue. *Forewing* with the costal margin somewhat broadly, and the outer margin very broadly, especially at the apex, dusky black: a patch of irrorated white scales on the disc between the third median nervule and submedian nervure, obsolete in some specimens. *Hindwing* with a broad even outer black border, somewhat divided by a series of bluish lunules, which are most prominent at the anal angle, and often enclose black spots. UNDERSIDE, *both wings* white, slightly tinted with blue. *Forewing* with a slender dusky disco-cellular streak, a discal series of six elongate spots, arranged in a regular sinuous line in some specimens (as in the female figured), or in others more irregularly (as in the male figured) ; a submarginal lunular line, a marginal series of linear spots, and a fine anteciliary line. *Hindwing* with the spots arranged as in *C. puspa* but they are less prominent, those on the margin reduced to linear marks. *Cilia* white on both sides in both sexes. FEMALE. UPPERSIDE, *both wings* very deep blue, almost black. *Forewing* with a broad pure white patch from near the subcostal nervure to the inner margin, a prominent disco-cellular streak, and the base thickly irrorated with deep blue scales. *Hindwing* with the outer margin rather less deeply blue than in the forewing, and bearing a series of pale lunules including black spots, the disc white but irrorated towards the abdominal margin with blue scales, as is also the base of the wing. In some specimens the white area on both wings is much restricted, appearing on the hindwing only at the middle of the costal margin. UNDERSIDE as in the male.

Both sexes of this species were taken by me at different elevations in Sikkim in October, there are specimens also in Mr. Otto Möller's collection taken in the Spring.

7. *CYANIRIS MARGINATA*, n. sp. (Plate I, fig. 9, ♂.)

C. marginata, Moore, *M. S.*

HAB. Sikkim.

EXPANSE: ♂, 1.45 inches.

DESCRIPTION: MALE. UPPERSIDE, *both wings* highly iridescent deep lavender-blue. *Forewing* with the costal margin including the upper half.

of the cell, and the outer margin, widely, especially at the apex, black; a patch of pure white scales on the disc outside the cell between the lower discoidal and first median nervules; a black disco-cellular streak. *Hindwing* with the costal and outer margins broadly black, including a submarginal lunular series of bluish marks, obsolete in some specimens except at the anal angle; a patch of pure white scales above the discoidal nervule. **UNDERSIDE**, *both wings* white, slightly tinted with blue. *Forewing* with a disco-cellular blackish streak, a discal series of six large very irregularly shaped and placed spots, a submarginal lunular line and marginal linear spots blackish; a black anteciliary line. *Hindwing* with three subbasal spots, a disco-cellular streak, and irregular discal series of eight to ten spots: marginal markings as in the forewing. *Cilia* white on both wings on both sides.

Three males of this species were taken by me on the Darjiling cart-road at about 5,000 feet elevation in October. There is a single male in Mr. Otto Möller's collection taken on Senchal, Sikkim, at about 8,000 feet elevation, in August, and another taken at a low elevation in December.

8. *CYANIRIS ALBOCÆRULEUS*. (Plate I, figs. 4, ♂; 4 a, ♀.)

Polyommatus albocæruleus, Moore, Proc. Zool. Soc. Lond., 1879, p. 139.

HAB. Simla; Deyra Doon; Nepal; Sikkim.

EXPANSE: ♂, 1·2 and 1·4; ♀, 1·35 inches.

DESCRIPTION: MALE. **UPPERSIDE** pure pearly white. *Forewing* with the outer margin broadly at the apex and decreasingly towards the hinder angle dusky black, this black border being reduced to a very fine black line at the hinder angle; the base, broadly along the costa and inner margin and within the outer black band pale clear shining blue, thus leaving a patch of the white ground-colour on the disc of the wing only. *Hindwing* with the base and abdominal half of the wing irrorated with very pale shining blue; the spots of the underside showing through slightly on the disc; an indistinct marginal series of dusky spots, and a fine anteciliary black line. **UNDERSIDE**, *both wings* white, slightly tinted with blue. *Forewing* with a slender blackish disco-cellular streak, a curved discal series of five or six elongate spots, and a marginal series of very indistinct small spots, obsolete at the hinder angle. *Hindwing* with ten or eleven small dusky spots, of which three are subbasal, the rest arranged irregularly across the disc; a submarginal series of small spots, and a fine marginal black line. **FEMALE** with the costal and outer borders very broadly dusky black, the discal patch white, the inner margin broadly irrorated with blue. *Hindwing* with the discal area between the nervules bluish-white, all the rest dusky; a submarginal series of oval dusky spots, and the marginal

black line. **UNDERSIDE**, *both wings* exactly as in the male. *Cilia* white on both sides in both sexes.

Nearly allied to *Cyaniris akasa*, Horsfield, from which (*apud* Moore in 'Lep. Cey.') the male differs on the upperside of the forewing having no dusky on the base and costal margin, and the outer black border being narrower throughout.

Two males were taken by me in the bed of the Simla river on the 26th October and 2nd November, 1879, respectively, and one female also at Simla but the exact locality and date were not recorded. All three specimens are quite perfect; and the males agree absolutely except in size. I also took one male in Sikkim in October at about 3,500 feet elevation.

Mr. Moore seems to have described the female of some other species as the female of *C. albocæruleus*, as he states that in that sex the broad outer marginal black band on the upperside of the forewing does not reach the posterior angle, whereas in my female the band is very wide at that point. As the undersides of both sexes of the specimens described above agree absolutely, I think I have paired them correctly, while if the females of this species be variable Mr. Moore's description would be correct.

9. *CYANIRIS CHENNELLI*, n. sp. (Plate I, fig. 10, ♂.)

HAB. Shillong, Assam.

EXPANSE: ♂, 1·1 and 1·25 inches.

DESCRIPTION: MALE. **UPPERSIDE**, *both wings* lavender-blue. *Forewing* with the outer margin widely dusky-black, widest at the apex; a dusky disco-cellular streak. *Hindwing* with the costal and outer margins widely dusky-black. **UNDERSIDE** pale grey. *Forewing* with a slender disco-cellular streak outwardly defined with whitish, a discal slightly sinuous series of six rounded spots also outwardly defined with whitish; very pale and indistinct submarginal lunular line, marginal linear spots, and anteciliary line. *Hindwing* with two subbasal small black spots, a faint disco-cellular streak, and an irregular discal series of nine black spots outwardly defined with whitish, of which the third, fourth and fifth from the costa are much paler; marginal markings as on the forewing. *Cilia* of both wings somewhat dusky on the upperside, concolourous with the wings on the underside.

There are two male specimens in the Indian Museum, Calcutta, which were taken by Mr. A. W. Chennell, after whom I have named the species; they differ only in size.

10. *NACADUBA BHUTEA*, n. sp. (Plate I, fig. 13, ♂.)

HAB. Sikkim.

EXPANSE: ♂, 1·1 inches.

DESCRIPTION. MALE. Differs from Sikkim specimens of *N. ardates*, Moore, in being larger, the band crossing the middle of the cell on the

UNDERSIDE of the *forewing* in *N. ardates* not extending below it in *N. bhutea*, and the lower spot of the discal series well retired from the line of the five spots above it, whereas in *N. ardates* there are two lower spots out of line, one being additional.

I took a single specimen on the Darjiling cartroad between 2,000 and 5,000 feet elevation, in October, 1880, and numerous specimens have since been taken in Sikkim at low elevations. It seems a constant and well-marked species.

11. NACADUBA NORA. (Plate I, fig. 14.)

Lycæna nora, Felder, Reise Novara, Lep., vol. ii, p. 275, no. 341, pl. xxxiv, fig. 34, ♂ (1865).

HAB. Amboyna (*Felder*); South Andamans.

EXPANSE: 1 inch.

DESCRIPTION. UPPERSIDE smoky deep purple. *Hindwing* with a marginal series of increasing lunules, the one between the first and second median nervules inclosing a prominent black spot, the final one two much smaller spots. UNDERSIDE bright castaneous brown. *Forewing* with a catenulated band across the middle of the cell from the subcostal nervure to the inner margin, a similar band closing the cell, a discal band of spots somewhat broken and directed inwards at the fifth spot from the costa, a submarginal band of lunules, marginal linear spots and black anteciliary fine line. *Hindwing* with a basal chain of spots, another closing the cell, and a discal much curved and broken band; marginal markings as on forewing, but with a prominent subanal black spot between the first and second median nervules, crowned with an orange lunule, and marked outwardly with a few metallic green scales; two minute similar spots at the anal angle.

Mr. de Roepstorff has sent a single specimen which seems to be identical with Felder's *L. (= h.) nora*. It is allied to *N. ardates*, Moore, but differs in the discal chain of spots on the underside of the forewing which are larger and less broken, also in the straighter outer margin of that wing.

12. NACADUBA? DANA, n. sp. (Plate I, fig. 15, ♂.)

HAB. Bholahât, Malda; Buxa, Bhutan; Sikkim; Chittagong District.

EXPANSE: ♂, .95 to 1.05; ♀, 1.05 inches.

DESCRIPTION: MALE. UPPERSIDE, *both wings* violet blue, with the outer margins evenly narrowly black. UNDERSIDE *both wings* fawn colour. *Forewing* with a white-bordered dusky spot in the middle of the cell, a similar one at its end, a discal chain of six similar spots, the two lower ones out of line, (in some specimens the sixth lowest spot is absent); submarginal and marginal indistinct series of pale lunules. *Hindwing* crossed by three

much broken bands of white-bordered dusky spots, and submarginal and marginal lunules as in the forewing; two small black spots at the anal angle on the margin. *Cilia* dusky throughout. FEMALE. UPPERSIDE, *forewing* black, the disc whitish and covered with pale blue metallic scales, the disco-cellulars marked with a black spot. *Hindwing* dusky, with pale bluish-white streaks between the nervules, a black disco-cellular spot, and obscure marginal pale lunules. UNDERSIDE cream-coloured, the markings as in the male, but all the spots and bands (except the two black anal spots) pale ochreous.

Two male specimens were taken in the Sikkim Tarai in July and August, 1881, by Mr. Otto Möller, and four males from Bhurkhul and one from Demagiri in the Chittagong District were taken by Mr. H. M. Parish in February, 1883. All these specimens are very constant, showing no variation whatever. They present a superficial resemblance to *N. ardates*, Moore, but are a different colour on the upperside; they have also no tail, and should therefore probably be placed in a different genus. Mr. Otto Möller has also obtained numerous males at low elevations in Sikkim during the summer and autumn including the female described, Mr. Irvine has sent it from the Malda District, the Museum collector took it at Buxa, and I took it in the Great Runjit valley, Sikkim, in October.

13. *CASTALIUS INTERRUPTUS*, n. sp. (Plate I, fig. 12, ♀.)

C. interruptus, Moore, *M. S.*

HAB. Khurda, Orissa; Bholahât, Malda; Sikkim.

EXPANSE: 1·15 to 1·20 inches.

DESCRIPTION. MALE and FEMALE. UPPERSIDE, *both wings* pure white. *Forewing* with the base thickly irrorated with black scales, beyond with a dense black patch widest on the costa, inwardly recurved below the submedian nervure, from whence it suddenly narrows. (In some specimens the irrorated black scales at the base of the wing and the black patch beyond are entirely merged into one black basal patch, and the costa throughout is widely black.) The apex widely, the outer margin as far as the first median nervule less widely, then to the inner margin more widely again deep black; with a round black spot above the first median nervule coalescing with the black border, this spot is sometimes entirely separated, in other specimens very indistinct, and lastly in others its form is entirely lost in the black margin. *Hindwing* with the immediate base and a few irrorated spots beyond black, the outer margin also black, enclosing immediately within a black anteciliary fine line a more or less prominent and complete series of white oblong marks between the nervules. UNDERSIDE with the markings arranged as in *C. hamatus*, Moore, but smaller and more restricted, especially on the *hindwing*. *Cilia* on both sides on both wings white, marked with a black spot at the tip of each nervule; *tail* black with

a white tip. The male differs from the female only in having the apex of the forewing more produced.

Closely allied to *C. decidia*, Hewitson, and *C. hamatus*, Moore, but differing from Ceylon specimens of the latter in that the black markings on the upperside of both wings are far more restricted, and on the underside of the hindwing much smaller and partially separated into spots.

The specimen figured (a female) was taken at Khurda, Orissa, by Mr. W. C. Taylor; I have since received numerous males and females from Bholahât in the Malda District, Bengal, where they were taken by Mr. W. H. Irvine in the cold weather. There is also a single female specimen from Sikkim in Mr. Otto Möller's collection.

14. *CASTALIUS ANANDA*, n. sp. (Plate I, fig. 11, ♂; 11a, ♀.)

HAB. Sikkim; Kadur District, Mysore.

EXPANSE: ♂, .85 to 1.15; ♀, .85 to 1.05 inches.

DESCRIPTION. MALE. UPPERSIDE, *both wings* deep shining purple, the outer margins black; and with all the black markings of the underside showing through by transparency in some specimens. UNDERSIDE, *forewing* sullied white, with the following black markings:—a basal streak, a transverse streak from the middle of the costa to near the middle of the wing, almost joined to another wider streak placed within it from the subcostal to the submedian nervure; a very irregular discal series of four or five oblong spots, an even submarginal series of seven spots, and a similar but smaller series on the margin divided from the cilia by a very fine white line. *Hindwing* with numerous spots placed irregularly over the whole surface, and with the submarginal and marginal series as in the forewing; the spot, however, at the base of the tail, and the two confluent ones placed within it irrorated with metallic greenish scales. *Cilia* dusky throughout; *tail* long, black with a white tip.

I have only seen three specimens of this species, the male figured and another one much smaller I took in the valley of the Great Runjit, Sikkim, in October, 1882, the third was sent to the Museum by Mr. Kearney from the Kadur District, Mysore; the latter is much the largest specimen of the three, and has the apex of the forewing more produced. All three specimens differ slightly in the markings of the underside, but all undoubtedly belong to one sex of the same species.

Since the above was written I took a male and a female also in the Great Runjit valley in October, 1883, and have seen numerous specimens from Sikkim in Mr. Möller's collection, including two females, which latter differ from the male on the upperside in being pale dusky fuliginous, the markings of the underside showing through even more prominently than in the male, and the base of both wings thickly irrorated with metallic blue scales. Underside as in the male.

15. MILETUS HAMADA. (Plate I, fig. 16, ♂.)

M. hamada, Druce, Cist. Ent., vol. i, p. 361; id., Elwes, Proc. Zool. Soc. Lond., 1881, p. 882.

This pretty little species was recorded by Mr. Druce from Yokohama, Japan, and has not hitherto been figured. I took two specimens in the valley of the Great Runjit, Sikkim, in October, 1882, and Mr. Otto Möller has several specimens of both sexes also taken in Sikkim during the summer and autumn. The expanse of these specimens differs from .85 to .95 of an inch; Mr. Druce's specimens measured $1\frac{1}{16}$ inches. There is a considerable general resemblance between the markings of the underside of this species and of *Castalius ananda*, but the latter is very different on the upperside, and is also furnished with a tail. The extent of the white discal patches on the upperside are very variable, in some specimens they are entirely wanting, but the markings of the underside are constant.

16. NIPHANDA ? CYMBIA, n. sp. (Plate IX, figs. 8, ♂; 8a, ♀.)

HAB. Sikkim.

EXPANSE: ♂, 1.05 to 1.15; ♀, 1.15 to 1.4 inches.

DESCRIPTION: MALE. UPPERSIDE, *forewing* shining violet; the costa, outer margin, a disco-cellular streak and the veins black. *Hindwing* also violet, with the costal, outer and abdominal margins black, this black border ascending in two conical-shaped spots between the median nervules. UNDERSIDE sullied white, the markings fuliginous. *Forewing* with a basal streak, an increasing band from the subcostal nerve to the inner margin crossing the middle of the cell, an oval spot closing the cell, a discal series of six quadrate spots broken at the second median nervule, the two lower ones nearer the base of the wing, a patch beyond the four upper spots, wide on the costa, decreasing to the fourth spot, where it ends in a fine point, a submarginal irregular line and marginal spots, the two spots between the median nervules the largest and most prominent, a fine anteciliary black line. *Hindwing* with a spot at the base; three spots beyond, the one on the costa the largest and darkest; a double spot closing the cell, with two spots above it, the upper one very large oval and black; a very irregular discal series, marginal markings as on forewing. *Cilia* fuliginous on both sides of both wings, very long at anal angle of hindwing. *Antennæ* black, with the slender club tipped with white above, the shaft obscurely annulated with white below. *Body* black above, whitish below, the segments laterally marked with whitish. FEMALE. UPPERSIDE fuliginous grey, paler on the disc of both wings. *Forewing* with the disco-cellular and discal spots of the underside showing through. *Hindwing* with a submarginal series of pale spots, then a dark band, and finally a series of black roundish spots increas-

ing to the fourth which is the largest, the two anal ones small and linear, all outwardly defined with a fine gray line. UNDERSIDE with the ground-colour much paler than in the male, being almost white, all the markings larger and more prominent.

The markings of the female of this species are so like those of *Niphanda tessellata*, Moore (Proc. Zool. Soc. Lond., 1874, p. 572, pl. lxxvi, fig. 6) from Penang, that in the Journ. A. S. B., vol. li, pt. ii, p. 61, (1882), I entered this species as occurring in Sikkim, with the remark:—"One female at about 1,500 feet elevation. It is rather smaller than the specimen described by Mr. Moore from Penang, and the upperside is entirely un glossed with blue," believing that the sex of the species described by Mr. Moore was male, my specimens being undoubtedly females. Having since obtained both sexes of my species I am able to describe it. It does not agree with Mr. Moore's generic diagnosis of *Niphanda*, as *N. ? cymbia* has only three median nervules to the forewing instead of four as stated by Mr. Moore, the subcostal nervules being probably meant for median; the first three subcostal nervules are all given off at regular intervals before the apex of the cell, the fourth subcostal branching from the third before its middle, and both reaching the costa before the apex of the wing.

It seems a fairly common species in the low valleys below Darjiling, the females largely predominating in numbers, however, over the males.

17. *HYPOLYCENA NASAKA*. (Plate IX, fig. 2, ♀.)

Thecla nasaka, Horsfield, Cat. Lep. E. I. Co., p. 91, n. 23 (1829), male; *Deudorix nasaka*, Hewitson, Ill. Diurn. Lep., *Lycæniidæ*, p. 24, n. 21, pl. v, figs. 45, 46 (1863), male; *Hypolycaena nasaka*, Moore, Proc. Zool. Soc., Lond., 1882, p. 249.

HAБ. Java; Sikkim; Kangra District, N.-W. Himalayas.

EXPANSE: ♂, 1.0 to 1.15; ♀, 1.25 inches.

DESCRIPTION: MALE. Differs from Horsfield's description on the UPPERSIDE of the *hindwing* in that the cyaneous colour is placed broadly on the outer margin, extending upwards towards the middle of the wing between the third median nervule and subcostal nervure, not as stated by Horsfield covering the hindwing "excepting the exterior and interior borders." Hewitson's figure shows the hindwing entirely covered with the blue colour. The *forewing* is furnished on the underside with a bunch of long black hairs attached to the inner margin near the base and folded beneath. There is a corresponding cup-like depression on the underside of the hindwing, which is marked on the upperside by a shining bare round patch near the costal base of the wing and covered by the forewing. There are fourteen male specimens in the Indian Museum, Calcutta, all taken by Mr. A. Graham Young in the Kulu valley, and a single male from Sikkim,

which differs from the other specimens in the ground-colour of the underside being much darker and of a cupreous purple shade. FEMALE. UPPERSIDE glossy fuliginous, paler on the disc of the *forewing*. *Hindwing* with a conspicuous black spot on the margin between the first and second median nervules, marked anteriorly with scattered white scales, which also appear decreasingly in the two next interspaces beyond and in the one before that containing the black spot, a fine marginal white line not reaching the outer angle, then a black line, the *cilia* white between the tail and the discoidal nervule, the anal lobe with an ochreous and metallic green spot, tail black with a white tip. UNDERSIDE agreeing in the ground-colour with the N.-W. Himalayan specimens.

The single female specimen described is in Mr. Otto Möller's collection, and was taken at a low elevation in Sikkim in October.

18. *HYPOLYCENA CHANDRANA*. (Plate IX, fig. 1, ♀.)

H. chandrana, Moore, Proc. Zool. Soc. Lond., 1882, p. 249, pl. xi, figs. 2, 2a, male.

HAB. Lahul; Kulu Valley.

EXPANSE: ♀, 1.15 inches.

DESCRIPTION: FEMALE. UPPERSIDE dull uniform fuliginous, the anal lobe (as in the male) black with an ochreous and metallic green spot. UNDERSIDE paler than in the male, being almost pure white, the markings similar but also paler and more diffused.

This species (of which there are two males and one female in the Indian Museum, Calcutta, all collected by Mr. A. Graham Young in the Kulu valley) is very near to the Javan *Thecla malika*, Horsfield (Cat. Lep. E. I. Co., p. 90, no. 22, 1829), and the male has similar secondary sexual characters as *H. nasaka*.

19. *NILASERA?* *ASOKA*, n. sp. (Plate IX, fig. 6, ♂; 6a, ♀.)

EXPANSE: ♂, 1.75; ♀, 1.8 inches.

HAB. Sikkim.

DESCRIPTION. UPPERSIDE dark glossy purple, the costa and outer margin of the *forewing* narrowly black, the inner and outer margins of the *hindwing* more widely black; *tail* long, narrow, black with a white tip. UNDERSIDE, *forewing* with a pale line across the middle of the cell (sometimes absent), a spot near the end of the cell variable in size and shape, a quadrate spot from one-fifth of the first median nervule to the inner margin, a chain of square spots divided only by the nervules beyond the cell from the costa to the first median nervule, the third lower spot being posteriorly lengthened towards the outer margin, the two following it rectangular, thus giving the chain a broken appearance at the third median

nervule—all these markings placed on a rich dark brown ground; the apex and decreasingly to the first median nervule paler and glossed with violet, inwardly sharply defined, the outer margin dark brown at the apex paler towards the inner angle. *Hindwing* with the base of the wing rich dark brown, with a pale violet even streak from the costa to the base above the cell; a discal irregular dark brown band placed on a pale violet ground, and other paler irregular markings beyond; a submarginal lunulated line, and three black spots beyond it at the anal angle almost covered with brilliant green iridescent scales. FEMALE. UPPERSIDE, *forewing* black; with the cell (all except its extreme end), the basal half of the lower discoidal, median, submedian and internal interspaces iridescent light ultramarine blue. *Hindwing* with the middle and base of the wing blue as in the forewing. UNDERSIDE with the markings as in the male.

The markings of the underside of the forewing of this species are nearest to the *Amblypodia diardi* of Hewitson (Cat. *Lycænidæ* B. M., 1862, p. 9, pl. v, figs. 41, 42 ♂); they differ largely, however, in the hindwing.

There are numerous examples of both sexes of this species in Mr. Otto Möller's collection, three males and a female in Colonel Lang's collection, and several specimens of both sexes in the Indian Museum, Calcutta, all from Sikkim.

20. NILASERA? ADRIANA, n. sp. (Plate IX, figs. 5, ♂; 5a, ♀.)

HAB. Sikkim.

EXPANSE: ♂, 1.6 to 1.9; ♀, 1.65 to 1.8 inches.

DESCRIPTION: MALE. UPPERSIDE as in *N. asoka*, but the black bordering at least twice as wide. UNDERSIDE, *forewing* marked as in *N. asoka*. *Hindwing* dark brown glossed almost throughout with pale violet grey but exceedingly variable, in some specimens the ground-colour is very pale, the markings therefore being very prominent, in others so dark that they are hardly traceable; the male specimen figured is about midway between these two extremes. Three subbasal small round spots, a chain of spots from the costa to the middle of the cell, another chain also from the costa crossing the cell at its end, a third chain from the subcostal nervure to the abdominal margin, a submarginal lunulated line, but no black, green-irradiated, anal spots, which at once distinguishes this species from *N. asoka*. FEMALE. UPPERSIDE as in *N. asoka*, but the blue colour more of a purple shade. UNDERSIDE as in its male.

This is apparently one of the commonest "hairstreaks" in Sikkim, Mr. Otto Möller obtaining very numerous specimens of both sexes throughout the warm weather. There are specimens of both sexes in Colonel Lang's collection.

21. NILASERA? FULGIDA. (Plate IX, figs. 3, ♂; 3a, ♀.)

Amblypodia fulgida, Hewitson, Ill. Diurn. Lep., *Lycenidæ*, p. 11, pl. v, fig. 31 (1863), *female*.

HAB. Sikkim; Daffla Hills; Philippines.

EXPANSE: ♂, 1·6 to 1·9; ♀, 1·6 to 1·7 inches.

DESCRIPTION: MALE. UPPERSIDE rich dark purple, the outer margin of both wings very narrowly black, *tail* black, short, tipped with white. UNDERSIDE, *forewing* with the basal area dark rich brown; a pale quadrate spot near the end of the cell, then a broad dark brown band from the costa to the first median nervule, then a narrower pale band, and lastly an even dark band also from the costa to the first median nervule; an apical decreasing violet patch, the outer margin dark brown. *Hindwing* with a narrow dark brown streak from the costa, then a broader pale violet streak, then a still broader dark brown streak; a dark brown streak from the costa to the first median nervule closing the cell, with a spot beyond, another streak beyond much diffused anteriorly, a black spot crowned with golden yellow scales on the margin in the first median interspace, and a similar larger one at the anal angle, with a smaller one attached to it outwardly. FEMALE with the middle only of both wings purple of a brighter and lighter shade than in the male. UNDERSIDE as in the male.

As Hewitson's figure of the underside of a female of this species from the Philippines is not very clear, I have figured both sides of both sexes of Sikkim specimens. There are several examples of both sexes from Sikkim in Mr. Otto Möller's collection, and I took two females on two different years at the same place below Darjiling at about 3,500 feet elevation in October. There is also a male taken by the Daffla Expedition in the Daffla Hills in the Indian Museum, Calcutta.

22. NILASERA? MOELLERI, n. sp. (Plate IX, figs. 4, ♂; 4a, ♀.)

HAB. Sikkim; Sibsagar, Upper Assam.

EXPANSE: ♂, 1·75 to 1·80; ♀, 1·8 inches.

DESCRIPTION: MALE. UPPERSIDE magnificent shining ultramarine blue, the costa and outer margin of the *forewing* and outer margin of the *hindwing* narrowly black, the costa of the latter wing more widely black: three short black tails, the middle one in continuation of the first median nervule rather longer than the other two, and tipped with white. UNDERSIDE dark rich brown. *Forewing* marked exactly as in *N.?* *ariadna*, except that the discal chain of spots is less broken in the middle. *Hindwing* with a narrow pale purple streak at the base, then a broad dark brown

band, followed by a pale purple irregular streak, and irregular pale purple and dark brown spots and streaks on the disc; a submarginal wavy dark brown line, which is lost towards the apex in a large diffused patch of the same colour; three subanal black spots almost covered with iridescent green scales; a fine anteciliary dark line; the *cilia* pale, dark at the end of the nervules. FEMALE. UPPERSIDE dark brown, with a patch of purple in the middle of both wings, very restricted in the hindwing. UNDERSIDE as in the male.

The type male has been sent to the Indian Museum, Calcutta, by Mr. S. E. Peal from Sibsagar; the female and a male in Mr. Möller's collection, (after whom I have named it, and to whom I am indebted for so many of the specimens described in this paper) were taken in Sikkim. There are three males and a female collected in Sikkim by Dr. T. C. Jerdon in Colonel Lang's collection.

On the upperside of the male this species is exactly of the same tint of resplendent blue as *N. ? areste*, Hewitson, which also occurs in Sikkim, but the black marginal border is very considerably narrower. The markings of the underside are quite different.

23. PANCHALA ? PARAMUTA, n. sp. (Plate IX, figs. 7, ♂; 7a, ♀.)

HAB. Sikkim.

EXPANSE: ♂, 1.3 to 1.4; ♀, 1.2 to 1.3 inches.

DESCRIPTION: MALE. UPPERSIDE glossy purple, the costa of the *forewing* narrowly, and outer margin widely black. *Hindwing* with only the middle of the wing purple, the rest black. UNDERSIDE pale brown, all the markings of a slightly darker shade with paler edges. *Forewing* with an obscure round spot near the base of the cell, a reniform one in its middle and another at its end; a spot at the base of the first median interspace, and another below the point where the first median nervule is given off; a discal very even chain of seven spots, a submarginal lunulated band and marginal spots. *Hindwing* with the markings arranged very evenly over the whole surface, a subbasal line of four round spots, succeeded by three larger spots also in line, then a bifurcated discal chain-like irregular series; marginal markings as in the *forewing*. The FEMALE differs from the male on the UPPERSIDE of the *forewing* only in the purple area being more restricted. On the UNDERSIDE the markings are rather more prominent. It has no tail.

There are two male and a female specimen in Mr. Otto Möller's collection, and one male in Colonel Lang's collection in addition to the type pair in the Indian Museum, Calcutta.

Family PAPILIONIDÆ.

Subfamily PIERINÆ.

24. MANCIPIUM DEOTA, n. sp. (Plate IX, fig. 10, ♂.)

HAB. Ladak.

EXPANSE: ♂, 2·7 inches.

DESCRIPTION: MALE. UPPERSIDE, *forewing* differs from specimens of *M. brassicæ*, Linnæus, from Leh, Ladak, in having the black outer margin continued to the first median nervule; and in this black margin on the *hindwing* being carried irregularly round the wing to the first median nervule, instead of being confined to a spot on the costa. On the UNDERSIDE the apex and outer margin decreasingly to the first median nervule are powdered with fuscous scales, and in addition to the two black spots in the first and third median interspaces present in *M. brassicæ*, there is a third more diffused spot reaching from just below the subcostal nerve to the costa midway between the end of the cell and the apex. *Hindwing* thickly irrorated with fuscous scales throughout; the outer dark marginal border of the upperside showing through indistinctly, and the costa towards the base of the wing not marked with yellow as in *M. brassicæ*.

A single specimen of this species at Gya, Ladak, was captured, on the 11th July, 1879, whilst three others owing to their swift flight escaped me.

25. MANCIPIUM DEVTA, n. sp. (Plate IX, figs. 9, ♂; 9a, ♀.)

HAB. Ladak.

EXPANSE: ♂, 2·3; ♀, 2·20 to 2·35 inches.

DESCRIPTION: MALE. UPPERSIDE, *forewing* pure dead white, the outer margin at the apex to the discoidal nervule marked with black, a similar spot internal to this, and a large roundish spot between the second and third median nervules. *Hindwing* with a black spot on the costa below the first subcostal branch beyond its middle, otherwise unmarked. UNDERSIDE, *forewing* as on the upperside, but the outer margin towards the apex marked with greenish and fuscous irrorated scales. *Hindwing* with the basal two-thirds irrorated with greenish and fuscous scales, except an oblong patch from the costa to the middle of the cell which is clear of these scales, the outer margin also marked between the nervules with similar irrorations. FEMALE. UPPERSIDE, *forewing* with all the markings larger and clearer, there being two additional black spots on the outer margin between the third and second, and second and first median nervules; also a diffused spot joined to the large round spot between the second and third median nervules almost reaching the submedian nervure. *Hindwing* with

the costal spot also much larger. **UNDERSIDE**, *forewing* differs from the male in having the base of the wing diffused with pale yellow, the apex and costal spot internal to it also suffused with yellow, and a prominent black spot on the disc below the large spot between the second and third median nervules as on the upperside. *Hindwing* with the base irrorated with pale yellow; and with an irregular discal band, its outer edge in the same position as that edge of the irrorated dark basal portion in the male, this band widest and deepest coloured at the costa, decreasing to the fold below the submedian nervure, irrorated yellowish fuscous: the outer margin marked with yellowish fuscous irrorations.

This species was met with by me only amongst the irrigated fields adjoining the villages of Lama Yuru and Nurla, Ladak. The male, somewhat worn and broken, was taken at the former place on July 3rd, 1879, and the four females were captured the following day at the latter place, all in perfect condition. It is unlike any *Pieris* known to me.

Family HESPERIIDÆ.

26. CHOASPES GOMATA. (Plate X, fig. 7, ♀.)

Ismene gomata, Moore, Proc. Zool. Soc. Lond., 1865, p. 783, male.

HAB. N.-E. Bengal (*Moore*); Sikkim; Wynaad, S. India.

EXPANSE: ♀, 2·3 inches.

DESCRIPTION: FEMALE. **UPPERSIDE** very dark glossy bronzy-green, shading off into glossy indigo-blue at the apex and outer margin. **UNDERSIDE** with the markings and ground-colour darker than in Sikkim males; *forewing* with a pale green spot in the second median interspace with a larger one in the interspace below it, in the male these spots are merged in a large patch of the pale ochreous ground-colour from the inner margin. The green markings everywhere more restricted and of a darker shade than in the male.

The specimen figured, taken by Mr. Rhodes-Morgan in the Wynaad, is the only female I have seen; there are numerous males, however, in Mr. Otto Möller's collection from Sikkim.

27. CHOASPES ? ANADI, n. sp. (Plate X, fig. 6, ♂.)

HAB. Sikkim; Masuri.

EXPANSE: ♂, 1·9 to 2·1; ♀, 2·45 inches.

DESCRIPTION: MALE. **UPPERSIDE** dark vinaceous brown distinctly glossed with purple, slightly paler in the middle of the disc. *Forewing* with a costal streak from the base to beyond the middle of the wing rich orange; *cilia* cinereous. *Hindwing* with the costa broadly pale ochreous; the *cilia* rich orange. Base of *both wings* and *thorax* clothed with long pale green iridescent hairs. **UNDERSIDE** paler brown washed with ochreous,

which colour assumes indistinct streaks between the veins on the *hindwing*. *Forewing* with the outer margin broadly washed with deep purple, the inner margin broadly pale ochreous; some pale streaks between the veins beyond the end of the cell; a round black spot at the extreme base of the wing with a spot of bright orange above it; *hindwing* with a similar but larger black spot. *Antennæ* dark brown above, ochreous below; *palpi* with the third joint dark brown, the second and first with the outer edge brown, the rest orange, which is the colour of the *legs*, the underside of the *body* and the anal tuft. The FEMALE differs from the male only in being larger and darker, the UPPERSIDE of the *hindwing* concolourous with the rest of the wing, not broadly pale ochreous as in the male.

The male of this species closely resembles that sex of *C. harisa*, Moore (Proc. Zool. Soc. Lond., 1865, p. 782), but differs in the forewing being much narrower, and on the hindwing in having the costal pale patch more restricted; on the underside the markings are less prominent. I have figured (Plate X, fig. 8, ♂) a beautifully fresh male of *C. harisa* taken by myself in Sikkim to show these differences more clearly. There is a male of *C. ? anadi* from Masuri taken at 7,000 feet elevation on 27th May, 1868, in Colonel Lang's collection.

Genus MATAPA, Moore.

This genus has hitherto contained three species, described under the genus *Ismene* by Mr. Moore in the Proc. Zool. Soc. Lond., 1865, p. 784, viz., *aria*, *druna* and *sasivarna* from Bengal, and a fourth very beautifully and distinctly marked species, *Matapa subfasciata*, from Ceylon, in his 'Lepidoptera of Ceylon.' I propose to describe a fifth species named *shalgrama*. All the species except *M. subfasciata* are very closely allied, yet in my opinion they can be separated, so constant in a large series of each are the following characters.

M. aria. Cilia of both wings yellowish-white. Underside ferruginous, in some specimens inclined to ochreous. The long hairs which clothe the body and base of the wings both above and below are hardly perceptibly iridescent greenish. Anal segment of the female furnished with a very close thick tuft of pale yellow hairs. Expanse averaging about 1.6 inches. (Mr. Moore gives for the female 2.1 inches, but so large a specimen has not been seen by me.)

M. shalgrama. Cilia of forewing yellowish-white, of hindwing orange-yellow, shading off into yellowish-brown at the apex. Underside varying from dark ferruginous to bright ochreous. Anal segment of the female with a dark brown thick tuft of hairs, marked with two paler brown streaks on each side. Expanse averaging about 2.1 inches. Other characters as in *M. aria*.

M. sasivarna. Cilia of forewing greyish-white, of hindwing broadly from anal angle to two-thirds of the margin orange-yellow, thence to the angle brown. Underside dull rich brown, in some lights beautifully glossed with iridescent greenish. Anal segment of the female furnished with a fringe (not a very close thick tuft) of long yellow hairs. Long hairs on body and base of wings brilliant (especially in the females) iridescent green. Expanse averaging about 1·8 inches.

M. druna. Cilia as in *M. sasivarna.* Underside dull rich brown glossed with iridescent greenish, but the apex of the forewing perceptibly lighter brown in the males. Long hairs also iridescent green. Anal tuft of female as in *M. sasivarna.* Expanse averaging about 1·95 inches.

28. MATAPA SHALGRAMA, n. sp.

Hesperia aria, Hewitson, Ex. Butt., vol. iv, *Hesperia* pl. iii, figs. 24, 25 (1868), female.

HAB. Sikkim.

EXPANSE: ♂, 2·1; ♀, 2·2 inches.

DESCRIPTION: MALE. UPPERSIDE dull rich chocolate-brown, slightly paler on the outer margin of the forewing. Cilia of forewing yellowish-white, of hindwing orange-yellow, shading off into yellowish-brown at the apex. UNDERSIDE dark ferruginous. FEMALE. UPPERSIDE paler than in the male, the forewing uniformly coloured and lacking the male sexual streak; with the area before the subcostal nervure from the base to half the length of the wing ochreous. UNDERSIDE lighter coloured than in the male, in some specimens bright ochreous, except the inner margin which is brown extending widely into the disc of the forewing. Anal segment furnished with a very close thick tuft of dark brown hairs, marked on each side with two pale brown bars. Body on the upperside dark brown, below ferruginous or ochreous. Eyes scarlet.

Three males and seven females of this species seen by me show but little variation. Hewitson's figure of the female is sufficiently characteristic to make the species easily recognizable.

29. BAORIS OCEIA. (Plate X, fig. 11, ♀.)

Hesperia oceia, Hewitson, Desc. Hesp., p. 31, n. 22 (1868); id., Wood-Mason and de Nicéville, Journ. A. S. B., vol. 1, pt. ii, p. 258 (1881); *Baoris oceia*, Moore, Lep. Cey., vol. i, p. 166 (1881).

In the Journ. A. S. B. (l. c.), a table of figures is given shewing the great diversity in the number and position of the spots of the forewing of South Andaman specimens of this species. A series of specimens of both sexes from Sikkim exhibits even greater variation, from totally unmarked specimens of both sexes through every gradation to the typical number of eight spots. I have figured a female altogether without markings to show one extreme of this variation.

30. PARNARA TULSI, n. sp. (Plate X, fig. 1, ♂.)

HAB. Sikkim.

EXPANSE: ♂, 1·8; ♀, 1·9 inches.

DESCRIPTION: MALE. UPPERSIDE rich dark brown with a vinous tinge. *Forewing* with three very small subapical spots, the middle one out of line, placed nearer the base of the wing; an increasing series of three spots outside the cell, placed one each at the bases of the median interspaces, all the spots semi-transparent ochreous-white: the base of the wing and the space below the submedian nervure as well as the base and disc of the *hindwing* (which is otherwise unmarked) clothed with long ochreous hairs. UNDERSIDE. *Forewing* marked as above, but the costa to beyond the middle, and broadly across the disc of the *hindwing* pale violet-white. *Cilia* cinereous. No secondary sexual characters.

A single male was taken by me at about 3,000 feet elevation in Sikkim in October. There is a FEMALE of this species also from Sikkim in Colonel Lang's collection. It differs from the male only in the wings being somewhat broader, and the apex of the forewing less acute.

31. ISOTEINON SATWA, n. sp. (Plate X, fig. 15, ♂.)

HAB. Sikkim.

EXPANSE: ♂, 1·3 to 1·4; ♀, 1·55 inches.

DESCRIPTION: MALE. UPPERSIDE rich dark brown. *Forewing* with two small subapical spots, the lower one twice the size of the upper, a rounded spot at the lower outer end of the cell, two similar spots at the base of the median interspaces, the lower one twice the size of the upper; all semi-transparent diaphanous ochreous-white. A small ochreous spot above the submedian nervure touching its middle. *Hindwing* with the middle of the disc clothed with long greenish-ochreous hairs. *Cilia*, cinereous. UNDERSIDE also dark brown, but the apex of the forewing and the outer margin of the hindwing broadly washed with purple. *Forewing* with the spots as above, but lacking the one placed against the submedian nervure; the costa to beyond the middle of the wing bears a narrow bright yellow streak widest at its end. *Hindwing* with the basal two-thirds also bright yellow, the outer margin of this yellow area very irregular. A small round brown spot near the middle of the cell, another above it and one beyond. No secondary sexual characters. *Body* brown above, yellow below; *antennæ* brown above, obscurely annulated with yellow below, club brown. FEMALE differs only from the male in being larger, the wings broader, and the apex of the forewing less acute. There is a second minute spot above the large one in the cell of the forewing.

This is a fairly common species at low elevations below Darjiling; there are numerous specimens of both sexes in Mr. Möller's collection.

32. PLESIONEURA AGNI, n. sp. (Plate X, fig. 4, ♀.)

HAB. Sikkim.

EXPANSE: ♂, 1.6; ♀, 1.8 inches.

DESCRIPTION. MALE. UPPERSIDE dark brown, but so thickly covered with large fulvous overlying scales as to leave the ground-colour visible only on the outer margin, a streak within the apical spots, and narrowly round all the transparent white spots. *Forewing* with a large quadrate spot filling the end of the cell, a small spot above it, a rather larger one at the base of the second median interspace, a large one nearly equal in size to the spot in the cell at the base of the first median interspace, and two small rounded spots in the submedian interspace placed obliquely, the upper one below the outer lower angle of the spot above; three or four small subapical spots, the upper one rather larger than the rest, the second out of line, being placed nearer the base of the wing:—all these spots lustrous semi-transparent white. *Cilia* dark brown, with a pale spot at the apex and another larger one on the submedian interspace. *Hindwing* with a black spot at the end of the cell (sometimes obsolete), and a curved series of eight similar spots, the two upper ones round, the others oblong and placed in pairs, (the two lowest spots—as in the specimen figured—sometimes obsolete). *Cilia* dark brown, paler towards the apex. UNDERSIDE pale brown. *Forewing* with the spots as above, but with a pale fulvous submarginal curved fascia. *Hindwing* as above but paler fulvous, the spots more prominent. FEMALE a little paler than the male, the spots somewhat larger. *Body* fulvous, *antennæ* black above, paler below.

Nearest to *P. chamunda*, Moore, which also occurs in Sikkim, but conspicuously differing from that species in having the hindwing marked with black spots above and below, and the cilia not alternately brown and white as in that species.

I have seen two pairs only of this species, they are similarly marked; and were all taken at low elevations in Sikkim.

33. PLESIONEURA AMBAREESA. (Plate X, fig. 9, ♀.)

P. ambareesa, Moore, Proc. Zool. Soc. Lond., 1865, p. 788.

HAB. Manbhum, Bengal (*Moore*); Akrain, Satpurus; Coonoor, Nilgiris.

This is a rare species, I have only seen two specimens; a female from Akrain, Satpurus, taken by Mr. J Davidson, C. S., is figured; the other taken by Mr. Alfred Lindsay at Coonoor in the Nilgiris.

34. PLESIONEURA BADIA. (Plate X, fig. 10, ♂.)

Pterygospidea badia, Hewitson, Ann. and Mag. of Nat Hist., fourth series, vol. xx, p. 322 (1877); idem, id., Desc. Lep. coll. Atk., p. 4, (1879).

I have only seen two specimens of this insect, one in Colonel Lang's collection, the other in the Indian Museum, Calcutta; both, as well as the specimen described by Hewitson, are from Sikkim. These two specimens have a fifth subapical small white spot, the extra one placed above the minute spot described by Hewitson in the lower discoidal interspace. The ring below the club of the antenna is ochreous, not white as stated by Hewitson.

35. ABARATHA TAYLORII, n. sp. (Plate X, fig. 13, ♂.)

HAB. Khurda, Orissa.

EXPANSE. ♂, 1·5; ♀, 1·75 inches.

DESCRIPTION: MALE. UPPERSIDE ochreous. *Forewing* with the following brown markings:—a spot near the middle of the cell and two below and just beyond it, a subapical streak touching and beyond the three subapical diaphanous spots, and a similar streak from the third median nervule to the inner margin beyond the discal spots: also the following diaphanous white spots with fine black margins:—two at the end of the cell, the upper one much the smaller and sometimes joined to the lower one; a round spot below in the first median interspace with a minute one above and beyond it in the second median interspace; two minute spots placed obliquely (the lower nearer the base of the wing) in the submedian interspace; three rather large subapical conjugated spots placed obliquely outwards. *Hindwing* with a subbasal streak, a rounded spot near the end of the cell, the disco-cellulars marked with a fine line, two spots one on either side of and in a line with the cell spot, and a discal sinuous macular series—all dark brown. *Cilia* dark brown. UNDERSIDE with the markings as above, but the whole area except the outer margin of the hindwing, and the apex widely and outer margin of the forewing, covered with pure white scales. FEMALE rather larger, paler, the markings similar.

Very near to *A. ranssonnetii*, Felder, which also occurs in Orissa, but differs from it in being ochreous not dark brown above, and the disc of the hindwing being unmarked with a group of ochreous spots and streaks as in that species.

I have named this species after Mr. W. C. Taylor, who has sent me from time to time large collections of Orissa *Rhopalocera*.

36. PYRGUS DRAVIRA. (Plate X, fig. 5, ♀.)

P. dravira, Moore, Proc. Zool. Soc. Lond., 1874, p. 576, pl. lxxvii, fig. 5, female.

I am not quite certain of my identification of this species, Mr. Moore's figure is not very like my specimens, nor does his description exactly agree.

I took two female specimens at Budrawah, Kashmir, on the 8th June, 1879, one of which is figured.

37. *HESPERIA*? *NAGA*, n. sp. (Plate X, fig. 2, ♀.)

HAB. Sibsagar, Upper Assam.

EXPANSE: ♀, 1.6 inches.

DESCRIPTION: FEMALE. UPPERSIDE brown, the *cilia* cinereous, dark brown at the end of the nervules. *Forewing* with a spot at the end of the cell; two smaller spots beyond, the lower one twice the size of the upper; an elongated spot near the middle of the second median interspace, and another (the largest of all) near the base of the first median interspace; all these spots semi-transparent ochreous-white. A subcostal narrow yellow streak extending from the base to beyond one-third of the length of the wing, a similar one touching and placed above the submedian nervure extending from the base to beyond half the length of the inner margin of the wing. *Hindwing* with an elongated streak of ochreous hairs in the cell, and a series of short ochreous streaks between the nervules placed outside it; a similar streak extending from the base to near the margin and touching the inner side of the submedian nervure. *Cilia* alternately cinereous and dark brown. UNDERSIDE lighter brown, the *cilia* white, brown at the end of the nervules. *Forewing* with the spots as above but whiter and edged with pure white; a subcostal streak extending from the base to nearly half the length of the wing, broadest at its end; beyond which are some streaks between the subcostal branches, two similar streaks in the discoidal interspaces, and a marginal series ending at the first median nervule, the two middle spots small; a wide streak extending to beyond the middle of the wing from the base placed in the submedian interspace:—all pure silvery white. *Hindwing* marked with about eighteen silvery white spots and streaks disposed equally over the whole surface of the wing. *Body* brown, the thorax thickly clothed with long ochreous hairs, the abdominal segments ringed with ochreous, paler below.

A single specimen has been obtained by Mr. S. E. Peal.

38. *HESPERIA*? *SWERGA*, n. sp. (Plate X, fig. 12, ♂.)

HAB. Sikkim.

EXPANSE: ♂, 1.45 to 1.6; ♀, 1.6 inches.

DESCRIPTION: MALE. UPPERSIDE dark brown. *Forewing* with a spot at the end of the cell, a larger one below it, and a third (sometimes absent) much smaller placed outwardly between them at the base of the second median interspace; three increasing conjugated subapical spots (sometimes absent), all these spots semitransparent lustrous white; a pale ochreous spot placed against and above the middle of the submedian

nervure. *Cilia* slightly paler than the ground-colour of the wing. *Hindwing* clothed with long pale brown hairs in the middle of the disc. *Cilia* grey. **UNDERSIDE.** *Forewing* dark brown, the apex widely pale ochreous, this colour decreasing to the inner angle; the spots as above, except that the pale ochreous one placed against the submedian nervure is absent. *Hindwing* pale ochreous throughout, which is the colour of the *cilia* on both wings. *Body* dark brown above, ochreous-white below. The **FEMALE** resembles the male.

The forewing of this species is very long and narrow, and differs in shape from all the Hesperids with which I am acquainted. There are numerous specimens in Mr. Möller's collection.

39. SATARUPA BHAGAVA ? (Plate X, fig. 14, ♀.)

I have figured a female specimen from Sikkim which I refer very doubtfully to this species. This specimen is not that female referred to in the Journ. A. S. B., vol. 1, pt. ii, p. 256 (1881), which is very near to the female of the variety named *andamanica*, but another subsequently obtained. The most typical specimen (from the description) of *S. bhagava* contained in the Indian Museum collection is from Upper Tenasserim. A male from Cachar entirely wants the brownish-white streak from the middle of the posterior margin on the upperside of the forewing, three males from Sikkim have the streak more or less obsolete, while another male has this streak and the subbasal band across the hindwing as wide as in the female now figured, and pure instead of ochreous-white as in all the other males. The white band across the middle of the abdomen is also very variable; it is present in all the specimens of variety *andamanica*, in the Upper Tenasserim male, in the pure white-banded Sikkim male, and in both the Sikkim females; in the Cachar male and three Sikkim males it is absent, all the segments of the abdomen being narrowly banded posteriorly with whitish. The spot in the cell is small in the Cachar male, in all the Sikkim males and in the Sikkim female figured; it is large in all the Andaman varieties and in the other Sikkim female. From the scanty material at my disposal, I am unable to say whether these differences are constant and sufficient for dividing the specimens into species.

EXPLANATION OF THE PLATES.

PLATE I.

- | | | |
|------|----|--|
| Fig. | 1. | <i>Cyrestis tabula</i> , n. sp., ♂. |
| „ | 2. | <i>Hestina zella</i> , Butler, ♀. |
| „ | 3. | <i>Lycæna ? leela</i> , n. sp., ♂. |
| „ | 3a | „ „ „ ♀. |
| „ | 4. | <i>Cyaniris alboceruleus</i> , Moore, ♂. |
| „ | 4a | „ „ „ ♀. |
| „ | 5. | „ <i>dilectus</i> , Moore, ♂. |
| „ | 5a | „ <i>puspa</i> , Horsfield, ♀. |

- Fig. 6. *Cyaniris transpectus*, Moore, ♂.
 " 6a " " " ♀.
 " 7. " *iynteana*, n. sp., ♂.
 " 7a " " " ♀.
 " 8. " *placida*, n. sp., ♂.
 " 9. " *marginata*, n. sp., ♂.
 " 10. " *chennellii*, n. sp., ♂.
 " 11. *Castalius ananda*, n. sp., ♂.
 " 11a " " " ♀.
 " 12. " *interruptus*, n. sp., ♀.
 " 13. *Nacaduba bhutea*, n. sp., ♂.
 " 14. " *nora*, Felder.
 " 15. *Nacaduba* ? *dana*, n. sp., ♂.
 " 16. *Miletus hamada*, Druce, ♂.

PLATE IX.

- Fig. 1. *Hypolycena chandrana*, Moore, ♀.
 " 2. " *nasaka*, Horsfield, ♀.
 " 3. *Nilasera* ? *fulgida*, Hewitson, ♂.
 " 3a " " " ♀.
 " 4. " *moelleri*, n. sp., ♂.
 " 4a " " " ♀.
 " 5. " *ariadna*, n. sp., ♂.
 " 5a " " " ♀.
 " 6. " *asoka*, n. sp., ♂.
 " 6a " " " ♀.
 " 7. *Panchala* ? *paramuta*, n. sp., ♂.
 " 7a " " " ♀.
 " 8. *Niphanda* ? *cymbia*, n. sp., ♂.
 " 8a " " " ♀.
 " 9. *Mancipium devta*, n. sp., ♂.
 " 9a " " " ♀.
 " 10. " *devta*, n. sp., ♂.

PLATE X.

- Fig. 1. *Parnara tulsii*, n. sp., ♂.
 " 2. *Hesperia* ? *naga*, n. sp., ♀.
 " 3. *Astictopterus butleri*, n. sp., ♂.
 " 4. *Plesioneura agni*, n. sp., ♀.
 " 5. *Pyrgus dravira*, Moore, ♀.
 " 6. *Choaspes* ? *anadi*, n. sp., ♂.
 " 7. *Choaspes gomata*, Moore, ♀.
 " 8. " *harisa*, Moore, ♂.
 " 9. *Plesioneura ambareesa*, Moore, ♀.
 " 10. " *badia*, Hewitson, ♂.
 " 11. *Baoris oceia*, Hewitson, ♀.
 " 12. *Hesperia* ? *swerga*, n. sp., ♂.
 " 13. *Abaratha taylorii*, n. sp., ♂.
 " 14. *Satarupa bhagava* ?, Moore, ♀.
 " 15. *Isoteinon satwa*, n. sp., ♂.





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West Newman & Co chromo lit.

INDIAN BUTTERFLIES.



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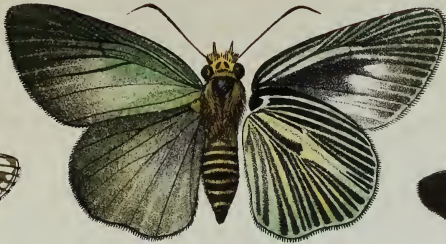
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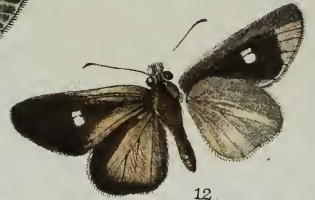
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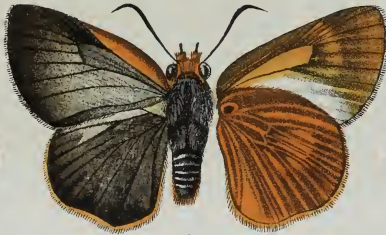
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12.



3.



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14.



5.



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INDIAN BUTTERFLIES.

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